

ABSTRACT OF THE DISCLOSURE

A method is described for making low-stress single crystals with a hexagonal crystal structure, which has a crystallographic c-axis perpendicular to a [0001] surface. A single crystal maintained at a temperature under the melting point of the crystal raw material is dipped in a melt of the crystal raw material, 5 whereby a solid-liquid phase boundary is formed. The crystal is subsequently drawn with an upwardly directed drawing motion e.g. by the Czochralski method. The method is characterized by drawing the crystal along the c-axis so that a temperature gradient of at least 30 K/cm is present in the crystal within a 10 centimeter of the solid-liquid phase boundary and by subsequently performing a tempering treatment on the resulting single crystal. The method is especially suitable for corundum crystals, such as sapphire, which are used as substrates for semiconductor components, such as LEDs.